

THE TREATMENT OF RINGWORM OF THE SCALP WITH THALLIUM ACETATE.*

BY

J. E. M. WIGLEY, M.B., M.R.C.P.

At the last meeting of this Section, held in Edinburgh in 1927, Dr. G. B. Dowling read a very interesting and complete paper on the treatment of ringworm of the scalp by thallium depilation. Since that time many communications have been made from different sources, some being records of series of cases—for example, that by Dr. Felden of New York in the *American Archives of Dermatology* of February of this year—others being notes of cases which have shown untoward or even alarming symptoms, such as that recorded by Dr. Davies of Brighton in the *British Medical Journal* of July 9th, 1927. Dr. MacLeod made a reference in a paper published in the *Journal* of April 21st, 1928 (p. 656), advising great caution in the use of thallium, and Dr. McKenna, in the last edition of his textbook, is of the same opinion.

Now that a year has passed I think that the presentation to you of some of the opinions I have formed of the general utility or otherwise of this treatment will provoke useful discussion, and the conclusions arrived at should be of value in placing the treatment in its correct place in our therapeutical armamentarium. I do not propose to trouble you with lists of figures beyond saying that I have treated some 50 patients at two children's hospitals in London. Their ages have varied from 18 months to 9 years, and the sexes have been about equally divided. The dose of thallium acetate has been 8.5 mg. per kilo of body weight, given in an ounce of sweetened water. (The drug has been obtained from three different sources, but I have observed no material difference in the effects.) As all my patients have been attending hospital as out-patients the conditions may fairly be said to be exactly the same as those of the cases depilated by x rays in Dr. MacLeod's clinic at Charing Cross Hospital, with which I compare them.

I have found that the average time for complete depilation with thallium is twenty-four to twenty-six days, and the depilation is entirely spontaneous in only about half the cases. In practically all the cases the infected stumps have been slower in falling than the healthy hair, whilst the recommencement of growth takes place very much sooner than with x rays. Here lies one of the chief reasons for which I regard the treatment as inferior to that of x rays.

Since Dr. Roxburgh brought to notice (in March, 1927) the method of detection of hair infected with ringworm by its fluorescence when illuminated by ultra-violet light passing through Wood's glass, I have been in the habit of checking all my "cures" by this method, and frequently with a very salutary effect. The routine use of this method has brought to light two facts which I have never seen reported and which are of some considerable importance. The first of these facts is that one frequently finds full-length, apparently healthy hairs fluorescent for the whole of their length. Examination of these hairs with a hand lens reveals no abnormality, nor do they appear to break more easily or to be more difficult to remove with forceps than normal hairs. Microscopical examination of these fluorescent hairs invariably showed the presence of ringworm fungus, and culture on several occasions further confirmed this. The importance of this observation will be referred to later.

The second fact I have observed is that hairs fully infected with endothrix ringworm completely failed to fluoresce. In these hairs the cuticle of the hair was seen under the microscope to be quite intact, which fact, I take it, explains the absence of fluorescence.

The point of this apparent digression becomes evident when the rapidity of regrowth after thallium depilation is considered, together with the difficulty of removing every single stump, some of which may not have been loosened by the drug. I have more than once failed to find evidence of infection by means of the microscope in a scalp

apparently satisfactorily depilated by thallium, and yet by means of Wood's glass have seen the full-length fluorescent hairs just described. This difficulty I have not encountered in the cases treated by x rays. Here I would like to say that the point I am making is not that x-ray treatment is infallible (it is too well known that it is far from that), but that its failures are not deceptive. I have never had any difficulty in immediately seeing the unfallen stumps in an under-exposed scalp, whereas I have just been at some pains to show that the failure of thallium depilation may camouflage itself very effectively.

Great stress was laid by Dr. Dowling and by several other writers on the importance of vigorous local treatment during the period of falling and recommencement of growth of the hair, and of this I am fully aware. But nearly all cases of ringworm are treated as out-patients, and as a rule are not seen more than once a week. Consequently most of the local treatment must, of necessity, be left to the mother, who, largely through force of circumstances, can seldom carry out the treatment satisfactorily. I have had the scalp painted with strong tincture of iodine, have used adhesive plaster, have ordered 12 per cent. sulphur and salicylic acid ointment, Whitfield's ointments, the iodide of sulphur ointment to be rubbed in, but have not been impressed with their power to combat the uncertainty of the depilation produced by the drug.

With regard to toxic symptoms, I have been struck with the fact that the older the child the more certainty is there of toxic symptoms supervening. Pain in the legs, usually coming on about the twelfth day and lasting about a week, is the most common symptom. It quickly responds to rest in bed, and seems to be of negligible importance. Drowsiness I have noticed in several cases, and have observed that such children were always of the pale, flabby type, though nothing abnormal was discovered on clinical examination. One case is worth reporting more fully.

The patient was a boy aged 9, who was in hospital suffering from a generalized dermatitis associated with seborrhoeic dermatitis of the scalp. He was given a dose of thallium acetate with the object of attempting to clear his scalp. About twelve days afterwards he exhibited an acute erythematous eruption on his forearms, the backs of the hands, and the shins. His temperature rose to 101° F. and he was definitely ill. His hair all fell towards the end of the third week, his temperature subsided, and the rash disappeared. Unfortunately the condition of his skin was unchanged. The sequence of events seems to me to point to some auto-intoxication, the action of the thallium being to lower his resistance at the time.

A case reported by Drs. J. H. T. Davies and M. C. Andrews in the *British Medical Journal* of December 17th, 1927 (p. 1139), presented somewhat similar though much more alarming symptoms. This patient, a girl of 11 years, showed swelling, redness, and tenderness of the legs with effusion into both knee-joints. On the eighteenth day the child had an epileptiform fit and was found to be febrile, to have some ascites and evidence of acidosis, as shown by acetone bodies being present in the urine. A much older patient of Dr. Davies suffered from loss of sensation in the legs and feet, associated with inability to walk, so that a diagnosis of peripheral neuritis was actually made.

It seems to be established that thallium acts through the sympathetic nervous system, and these cases show how seriously that may be affected. Whether such affection is purely temporary or not time alone will show, but until it is proven I think we should be very chary of risking the development of children in order to cure (by no means with "certainty") a purely local infection.

In conclusion, I think that thallium acetate is distinctly inferior to x rays (in the hands of a skilled operator), for the following reasons:

1. The relative uncertainty with which it produces the desired effect—that is, depilation.
2. The slower fall of the infected hairs and the short time elapsing before recommencement of growth.
3. The necessity for more skilled and vigorous local treatment during this time.
4. The greater risk of reinfection of the growing hair owing to the short time of baldness.
5. The toxic effects produced by the drug.
6. The possibility of permanent serious damage to the growing organism.

* A paper read in the Section of Dermatology at the Annual Meeting of the British Medical Association, Cardiff, 1924.